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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

TITLE: FENCING POST JUNCTION SYSTEM

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1 CITATION TO PARENT APPLICATION(S)

2 This application claims the benefit of U.S. Provisional
3 Application No. 60/427,012, filed November 18, 2002, and U.S.
4 Provisional Application No. 60/447,916, filed February 19,
5 2003, from which priority is claimed pursuant to 35 U.S.C.
6 119(e).

7
8 BACKGROUND OF THE INVENTION

9 1. Field of The Invention.

10 The present invention relates to the field of fence
11 construction. Representative examples of applications of the
12 present invention would be permanent fencing, temporary
13 fencing, and hand rails.

14
15 2. Background Information.

16 A serious deficiency presently exists with respect to the
17 need to weld the connections in most fencing junctures.
18 Welding cannot be accomplished on certain surfaces such as
19 galvanized steel without first removing the zinc coating or by
20 protecting against the toxic fumes that will be released if
21 the zinc is not removed. If the protecting zinc is removed
22 before welding, the resultant surface must be treated with

1 galvanizing paint to avoid damaging rust development after
2 welding.

3 Also, when welding is used to secure the joints in a
4 fence or hand rail, the resulting weld must be filed or ground
5 to create a smooth and flush surface that does not present a
6 danger to the people or animals who come in contact with the
7 welded surface. The present invention of no weld tubing
8 clamps and connector brackets eliminates the need for
9 repairing and protecting the surface after welding.

10 Further, welding requires specialized equipment, or
11 additional personnel to accomplish the welding process.
12 Currently, specialized clamps are sold to stabilize the joint
13 to be welded in cases in which there is not adequate personnel
14 available. The present invention allows a minimum of
15 equipment and personnel to accomplish the same end.

16 In addition, short pieces of pipe are typically wasted in
17 fence construction due to the difficulty of welding the pieces
18 together. The present invention allows such short pieces of
19 pipe to be spliced together and utilized in the fence, thereby
20 reducing waste.

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BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of a fencing post junction system of the present invention configured for perpendicular and non-perpendicular orientations.

Fig. 2 is an enlarged view of the components of a fencing post junction system of the present invention allowing for non-perpendicular orientations.

Fig. 3 is an enlarged view of the components of a fencing post junction system of the present invention allowing for perpendicular orientations.

Fig. 4 is a perspective view of a fencing post junction system connecting post junctions side to end not at a 90 degree angle to each other, connecting post junctions side to end at a 90 degree angle, and connecting post junctions in three different orientations.

Fig. 5 is a perspective view of a fencing post junction system connecting post junctions side to side but not parallel with each other.

Fig. 6 is a cross-sectional view of a fencing post junction.

Fig. 7 is an enlarged view of the abutment plates of a fencing post junction system allowing for side to side but not parallel orientations.

1 Fig. 8 is an enlarged view of the abutment member of a
2 fencing post junction system allowing for three different
3 orientations in one junction.

4 Fig. 9 is an enlarged view of the components of a fencing
5 post junction system of the present invention which forms the
6 first elongate post channel through which a fencing post may
7 extend.

8 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

9 With reference to the Figures, the fencing post junction
10 system of the present invention is identified generally by the
11 reference numeral 10.

12 Assembly 10 includes, at a minimum, a first post
13 engagement means 12 and a second post engaging means 14.
14 First post engagement means 12 include first and second collar
15 members 16 and 18, respectively, and a first and second
16 attachment members 26 and 27. In like manner, second post
17 engagement means 14 includes third and fourth collar members
18 22 and 24, and a second attachment members 20 and 21.

19 In any configuration of system 10 (for attaching, for
20 example, only two posts or rails), first and second post
21 engagement means 12 and 14 will be connected by some junction
22 member. For junctions involving three or more posts or rails,
23 additional post engagement means will be involved.

1 In the preferred embodiment of the present invention, the
2 junction member comprises mutually, reversibly attachable
3 portions, or extensions of the attachment members 20, 21, 26
4 and 27 themselves, which are configured for cooperatively
5 orienting first and second collar members 16 and 18 on the
6 first part, and third and fourth collar members 22 and 24 in
7 the second part, in the suitable relative orientations or
8 configuring a fencing or rail structure as desired. Of
9 course, the junction member may, in the alternative, be a
10 separate component (not shown in the drawings) which is
11 attached respectively to the first and second attachments
12 members 20 and 26 to support and orient them (and rails or
13 posts associated with them) as desired.

14 With particular reference to Figs. 2, 3 and 9, one can
15 see how collars 16, 18, 22 and 24 are to be nested within
16 recesses of attachment members 20 and 26 and secured by
17 suitable nut and bolt arrangements (or a suitable alternative
18 attachment means) whereby the respective axes of the
19 cylindrical spaces defined by pairs of collars 16 - 18 and 22
20 - 24 will be suitably defined and oriented for directing posts
21 or rails in the desired relative orientations.

22 Spacer member(s) 30 are to be included in system 10 for
23 maintaining suitable alignment of the components of each post

1 engagement means, and is to lie between any two juxtaposed
2 attachment members.

3 Figs. 7, and 8 illustrate a variety of attachment member
4 configurations for achieving varying combinations of post
5 engagement means for constructing highly variable post or rail
6 configurations. With particular reference to Figs. 1, 4, 5
7 and 6, it is clear that a near infinite variety of post or
8 rail configurations or orientations can be achieved quickly
9 and with considerable flexibility, through the mere selection
10 of the suitable attachment members for the desired
11 orientations.

12 Throughout the figures, one will note that abutment
13 plates 32 appear, either as part of attachment members or
14 collar members, and serve to limit the extent to which a fence
15 post or rail extends relative to the collar-defined,
16 cylindrical space.

17 An alternative embodiment of the present invention may
18 involve post engagement means in which collars and attachment
19 members are unitary structures which are merely selected and
20 attached to achieve the desired post or rail orientations.
21 However, it is believed that the depicted embodiments are more
22 cost-effective, as collar members are universally applicable

1 to any desired post or rail configuration, and only the
2 attachment members are specific to differing orientations.

3 A still further, alternative embodiment of the present
4 invention (not shown in the drawings) involves the
5 substitution of the depicted collar members with items which,
6 while still defining a path for posts and rails, does so
7 without a solid, annular surface, such as by suitably shaped
8 "fingers", tabs, or the like, but still attached to mounting
9 flanges for integrations with items serving substantially as
10 attachment members as shown.

11 It is contemplated that the post engagement means of this
12 invention, along with the post attachment means, and the
13 abutment plates, be produced from any suitably stiff material
14 that is convenient such as, but not limited to, steel or
15 aluminum. It is contemplated that the post engagement means
16 of this invention, along with the post attachment means, and
17 the abutment plates, be cast in molds or made in any other
18 conventional manner as is the common practice in this field.
19 It is further contemplated that the post engagement means and
20 the abutment plates of this invention will be scored with a
21 plurality of slots which allow for secure attachment of the
22 post engagement means and abutment plates. In the preferred
23 embodiment, the post engagement means and abutment plates are

1 secured by suitable nuts and bolts, as are commonly used in
2 the field. There is a plurality of conceivable mechanisms to
3 attach the post engagement means and abutment plates, the one
4 described above is illustrative, and not intended to limit the
5 possible adaptation for joining.

6 With reference to Figure 4, several variations of the
7 fencing post junction system of the present invention can be
8 seen. A fencing post junction system connecting post
9 junctions side-to-end, not at a 90 degree angle, is identified
10 generally by the reference numeral 17. A fence post junction
11 system connecting post junctions side-to-end, at a 90 degree
12 angle, is identified generally by the reference numeral 19.
13 And a fencing post junction system connecting post junctions
14 in three different orientations in the same junction is
15 identified generally by the reference numeral 23.

16 With reference to Figure 5, another variation of the
17 fencing post junction system of the present invention is
18 identified generally by the reference numeral 29.

19 Although not shown in the drawings, an alternative
20 embodiment may include an adjustable fencing post junction
21 system. In this embodiment, first and second attachment means
22 for first and second post engagement means would include
23 features for an interaction of holes, elongate slots, nuts and

1 bolts whereby, rather than having fixed orientations
2 associated with any one attachment means selection, the
3 orientation would actually be adjustable within a range or
4 relative movement of first and second (or more) post
5 engagement means.

6 Although the invention has been described with reference
7 to specific embodiments, this description is not meant to be
8 construed in a limited sense. Various modifications of the
9 disclosed embodiments, as well as alternative embodiments of
10 the inventions will become apparent to persons skilled in the
11 art upon reference to the description of the invention. It
12 is, therefore, contemplated that the appended claims will
13 cover such modifications that fall within the scope of the
14 invention.